DRAFT
MONITORING AND RESEARCH PROGRAM

Note to Reviewers: This draft Monitoring and Research section is part of the draft Conservation Strategy (Section 3.5). It provides definitions and general requirements for the BDCP Monitoring and Research Program. The monitoring plan only addresses monitoring requirements as they relate to compliance with ESA section 10, the NCCP Act, and the California ESA. Additional monitoring requirements for addressing effects of implementing the BDCP on the human environment and other resources may be identified in the BDCP EIR/EIS.

In this draft, the term "Implementing Entity" is used to refer generically to the agency or agencies that would implement the BDCP. It is understood that the Implementing Entity could be one entity or multiple entities under an implementation structure. As such, the term "Implementing Entity" is used here as a placeholder until the specific entity or entities responsible for various aspects of implementation are identified.

3.5 Monitoring and Research Program

This section describes elements of the BDCP monitoring and research program. The monitoring program is consistent with the guidance for monitoring provided in the U.S. Fish and Wildlife Service's Five-Point Policy for HCPs (65 FR 106, June 1, 2000) and through the provisions of the Natural Community Conservation Act (NCCPA) (Fish and Game Code Sections 2810(a)(7)). The Five-Point Policy identifies the following components that should be addressed by monitoring (65 FR 106, June 1, 2000; 35254:

> "(1) assess the implementation and effectiveness of the HCP terms and conditions (e.g., financial responsibilities and obligations, management responsibilities, and other aspects of the incidental take permit, HCP, and the IA, if applicable); (2) determine the level of incidental take of the covered species; (3) determine the biological conditions resulting from the operating conservation program (e.g., change in the species' status or a change in the habitat conditions); and (4) provide any information needed to implement an adaptive management strategy, if utilized. An effective monitoring program is flexible enough to allow modifications, if necessary, to obtain the appropriate information."

Consistent with this guidance, monitoring of BDCP implementation will be conducted to:

- document compliance with terms and conditions of BDCP permits, including incidental take of covered species;
- refine understanding of the effects of the covered activities (described in chapter 4, *Covered Activities*) on covered species and natural communities;
- collect data necessary to effectively implement the conservation measures;

- document the implementation and effectiveness of conservation measures;
- determine the appropriateness of the scientific hypotheses on which the assessment of effects and effectiveness are based; and
- assess progress towards achieving the biological goals and objectives.

3.5.1 Monitoring Responsibility

The BDCP Implementing Entity is responsible for implementing the BDCP monitoring plan.

Elements of the monitoring plan may be implemented by Implementing Entity staff or, with the oversight of the Implementing Entity, BDCP participants (e.g., DWR, Reclamation, Fishery Agencies), universities, contractors, or other qualified entities. As described under Section 3.5.4, monitoring conducted under existing programs implemented by other entities may also be used by the Implementing Entity to assess the effectiveness of BDCP conservation measures in achieving the biological goals and objectives. The Implementing Entity, however, retains sole responsibility for the quality of monitoring and research efforts undertaken by others and use for the BDCP.

3.5.2 Types of Monitoring

The BDCP monitoring program is intended to provide the Implementing Entity with information for three primary applications:

- tracking compliance with BDCP permit conditions;
- documenting the success of BDCP implementation relative to achieving the biological goals and objectives; and
- providing the data necessary to adaptively manage BDCP implementation to address uncertainties and to help ensure the attainment of the biological goals and objectives as efficiently as possible over the term of the BDCP.

The types and purposes of monitoring that would be undertaken by the BDCP Implementing Entity are described below.

Preconstruction surveys will be conducted immediately prior to (typically within one year) and within and adjacent to the implementation footprints of covered activities and conservation measures to determine if covered species are present and could be affected by implementation of the covered activity or conservation measure. Survey results would be used by the Implementing Entity to determine the need to implement conservation measures to avoid, minimize, and compensate impacts of covered activities and conservation measures on covered species and natural communities.

Construction monitoring will be conducted 1) to monitor implementation of covered activities and conservation measures to ensure that any applicable avoidance and minimization measures identified for implementation through results of preconstruction

surveys are effectively implemented and 2) ensure that conservation measures are implemented in accordance with specifications and plans.

Compliance monitoring would be conducted to 1) track progress of BDCP implementation in accordance with the implementation schedule and 2) compliance of the Applicants with terms and conditions of BDCP permits. Compliance monitoring would be undertaken for conservation measures implemented by the Implementing Entity and for conservation measures that may be implemented by other entities through contracts, Memoranda of Understanding, or other agreements with the Implementing Entity.

Performance monitoring will be conducted for 1) water operations conservation measures to assess flow and salinity conditions and screen performance, 2) physical habitat conservation measures to assess the development of intended attributes of restored habitats (e.g., vegetative composition and structure, ecological functions) and 3) for other stressors conservation measures to assess the success of implementation methods for addressing the stressor (e.g., effectiveness of *Egeria* control methods in reducing the extent of *Egeria*). Performance monitoring would be undertaken for physical habitat restoration and other stressors conservation measures implemented by the BDCP Implementing Entity and for conservation measures that may be implemented by other entities through Memoranda of Agreements, contracts, or other agreements with the Implementing Entity. Results of performance monitoring would be used by the Implementing Entity to determine if BDCP implementation should be adjusted through the BDCP adaptive management process (see Section 3.6, *Adaptive Management*) to improve BDCP implementation.

Effectiveness monitoring will be conducted to assess ecosystem and covered species responses to implementation of conservation measures. Effectiveness monitoring would be undertaken for water operations, physical habitat restoration, and other stressors conservation measures implemented by the BDCP Implementing Entity and for conservation measures that may be implemented by other entities through Memoranda of Agreements, contracts, or other agreements with the Implementing Entity. Results of effectiveness monitoring would be used by the Implementing Entity to determine if BDCP implementation should be adjusted through the BDCP adaptive management process (see Section 3.6, *Adaptive Management*) to improve the effectiveness of conservation measures for achieving biological goals and objectives.

System monitoring will be conducted to assess the overall status, trends, and distribution of selected covered species populations, the response of aquatic ecosystem processes that support covered fish species, and the extent of and ecological functions provided by covered natural communities that support of covered species within the Planning Area over the term of the BDCP.

3.5.3 Monitoring Plans

The BDCP Implementing Entity will prepare monitoring plans in collaboration with the Fishery Agencies, including survey protocols for preconstruction, performance, effectiveness, and system monitoring activities. Existing and generally accepted monitoring protocols (e.g., USFWS survey protocols for listed species, protocols for monitoring status and trends in abundance and distribution of covered fish species) may be adopted by the BDCP Implementing Entity as appropriate. It is anticipated, however, that specific monitoring protocols may need to be developed for monitoring related to assessing the performance and effectiveness of some conservation measures.

Monitoring plans, as appropriate to the monitoring purpose, should include the following information:

- a description of the purpose and objectives of the monitoring;
- a description of monitoring protocols, including sampling design and justification supporting the validity of monitoring methods and sampling design;
- analytical methods for assessing monitoring results;
- procedures for validating monitoring data and methods;
- monitoring schedule, duration, and rationale;
- content requirements and submission schedule for monitoring reports;
- monitoring data storage procedures;
- references, including printed references and personal communications;
- provisions for documenting subsequent revisions to the monitoring plan; and
- other information as appropriate to specific monitoring plans.

Because monitoring results are a primary source of information for ensuring achievement of the biological goals and objectives through the adaptive management process, monitoring plans must be based on the best available information and sampling designs must be statistically sound. To ensure development of defensible monitoring plans, protocols, and sampling designs, the BDCP Implementing Entity will provide for internal science-based review of these monitoring elements and provide for external science review as appropriate.

3.5.4 Integration of Monitoring with Other Programs

Monitoring of covered species that is relevant to BDCP implementation is currently undertaken by a number of entities, including DFG, DWR, USFWS, Reclamation, and UC Davis (see Table 3-X). These monitoring efforts are implemented under existing biological opinions and as part of larger programs to better understand the Bay-Delta ecosystem and fishery (e.g., Integrated Ecological Program, CALFED Science Program). The Implementing Entity will coordinate with entities implementing these monitoring programs and will use data collected through these programs, as appropriate, to evaluate the effectiveness BDCP implementation in achieving the biological goals and objectives

and assessing the long-term status and trends of covered fish species populations and ecosystem conditions (see Section 3.5.X, *System Monitoring* below).

3.5.5 Monitoring Program

3.5.5.1 Preconstruction Surveys

Surveys will be conducted before implementing ground-disturbing actions associated with covered activities and conservation measures within and adjacent to project sites as appropriate to determine if covered species are present and could be affected by the action. Covered species for which preconstruction surveys would be required are presented in Table 3-X.

The Implementing Entity will identify the appropriate survey protocols for each of the covered species listed in Table 3-X. Existing Fishery Agency approved survey protocols would be followed for listed covered species. For other covered species, the BDCP Implementing Entity may use existing protocols accepted by the Fishery Agencies for other projects or would develop BDCP-specific survey protocols if appropriate. BDCP-developed survey protocols would be developed and documented as described in Section 3.5.3, *Monitoring Plans.*

If results of preconstruction surveys for a specific BDCP action indicate that one or more covered species listed in Table 3-X is present and could be affected by implementation of the action, the BDCP Implementing Entity would implement the applicable avoidance and minimization measures for the affected species as described in Section 3.4.4, *Avoidance and Minimization Measures*.

3.5.5.2 Construction Monitoring

Construction monitoring will be conducted during implementation of covered activities and conservation measures that involve ground disturbing activities to ensure that the applicable avoidance and minimization measures are implemented as described in 3.4.4, *Avoidance and Minimization Measures*. Construction monitoring will be required if results of preconstruction surveys indicate that one or more covered species for which avoidance and minimization measures have been identified (see Section 3.4.4, *Avoidance and Minimization Measures*) could be affected by a BDCP action. Before initiating the action, the BDCP Implementing Entity would develop an action-specific construction monitoring plan.

Construction monitoring plans should include the following elements:

- results of preconstruction surveys, including locations of occupied covered species habitats;
- a description of applicable BDCP avoidance and minimization measures, including a description of action-specific refinements to the measures or additional measures not identified in Section 3.4.4, *Avoidance and Minimization Measures*, that would more effectively avoid and minimize impacts;

- inspection of any structures/materials emplaced to physically avoid and minimize impacts (e.g., fencing delimiting the extent of construction activity);
- a description of monitoring activities, including monitoring frequency, duration, and specific activities to be monitored; and
- a description of the onsite authority of the construction monitor to modify implementation of the activity.

3.5.5.3 Compliance Monitoring

Compliance monitoring includes documenting compliance with terms and conditions of BDCP permits and tracking progress of implementing conservation measures in conformance with the implementation schedule presented in Chapter 6, *Plan Implementation*. Monitoring will be undertaken to document compliance with incidental take authorizations (e.g., monitoring of numbers of covered fish species entrained at SWP and CVP intake and pumping facilities) and implementation of mitigation required to address effects of covered activities and conservation measures on covered species.

The BDCP Implementing Entity will be responsible for monitoring and tracking the implementation of all conservation measures, including those implemented by other entities through Memoranda of Agreements, contracts, or other agreements. The BDCP Implementing Entity will develop and maintain a GIS-linked database (see Section 3.5.8, *Database Development and Maintenance*) showing the location and extent of:

- BDCP restored habitats;
- tidal marsh and riparian habitats restored by other entities;
- existing covered natural communities;
- non-native species control areas; and
- locations of other BDCP actions (e.g., screened non-project diversions, *Egeria* control locations)

The purpose of the database will be to track the BDCP Implementing Entity's progress towards achieving implementation of BDCP conservation measures. The GIS-tracking database will be integrated into the overall BDCP program database described in Section3.5.8, *Database Development and Maintenance*.

3.5.5.4 Performance Monitoring

Water Operations Conservation Measures

To come.

Physical Habitat Restoration Conservation Measures

BDCP restored habitats will be monitored to determine the degree to which they develop as habitat for associated covered species and the degree to which they provide ecological functions in support of the aquatic ecosystem. Monitoring will be conducted to measure physical elements of restored habitats that are indicators of functioning habitat. Results of performance monitoring will be used to determine when restored habitats have successfully been restored based on their physical and biological attributes as they relate to habitat requirements of associated covered species and ecological functions. Results of performance monitoring would also be used by the BDCP Implementing Entity to evaluate the relative success of competing habitat restoration techniques to improve the effectiveness of restoring habitats through the adaptive management process.

The BDCP Implementing Entity in coordination with the Fishery Agencies will develop performance indicators and targets for restored habitat type before implementing habitat restoration actions. Potential performance indicators and targets for habitat restoration conservation measures are presented in Table 3-X. Potential habitat performance indicators and targets for covered species are presented in Table 3-X and potential ecological function performance indicators and targets are presented in Table 3-X. Attainment of restored habitat areas in achieving habitat performance indicators and targets for a covered species indicates the restored habitat areas have successfully developed as habitat for that species. Similarly, attainment of restored habitat areas in achieving ecological function performance indicators and targets indicates that the restored habitat areas have successfully developed ecological functions in support of the aquatic ecosystem.

The BDCP Implementing Entity may also establish quantified thresholds that would serve as adaptive management triggers for some conservation measures such that, if a threshold is not achieved, the BDCP Implementing Entity would implement appropriate actions to improve results through the adaptive management process. Performance indicators and targets and adaptive management triggers may be modified in future years the through the adaptive management process described in Section 3.6, *Adaptive Management*, based on new information as appropriate.

Other Stressors Conservation Measures

To come.

3.5.5.5 Effectiveness Monitoring

BDCP covered species will be monitored to determine individual and population responses of covered species, as appropriate, to implementation of BDCP conservation measures. Selected attributes of the aquatic ecosystem that support covered fish species will also be monitored to determine if conservation measures are effectively improving physical and biological conditions of Delta waterways in support of covered fish species.

Effectiveness monitoring would also be conducted to determine any undesirable secondary effects that may be associated with implementation of conservation measures.

The BDCP Implementing Entity in coordination with the Fishery Agencies will identify effectiveness monitoring requirements for conservation measures prior to their implementation. Monitoring protocols and schedules for effectiveness monitoring would be developed as described in Section 3.5.3, *Monitoring Plans*. Examples of effectiveness monitoring that may be implemented for conservation measures are presented in Table 3-X.

Table 3-X. Examples of Potential BDCP Effectiveness Monitoring [*Note to Reviewers: this table will be expanded to include effectiveness monitoring for all conservation measures.*]

BDCP Implementation Element	Potential Effectiveness Monitoring
Tidal marsh habitat restoration	▪ Change in production and export of organic carbon, phytoplankton, zooplankton, and other organisms into Delta waterways ▪ Food abundance in adjacent waterways ▪ Turbidity and water temperature in adjacent waterways ▪ Covered fish species use of restored habitat ▪ Survival of covered fish species adjacent to restored habitat ▪ Mobilization of contaminants and effects on covered fish species ▪ Degree of mercury methylation and effects on covered species ▪ Change in abundance of non-native predatory fish and their effects on covered fish species
Inundated floodplain habitat restoration	▪ Change in production and export of organic carbon, phytoplankton, zooplankton, and other organisms into Delta waterways ▪ Covered fish species use of restored habitat ▪ Growth and survival of covered fish species using restored habitats ▪ Production of Sacramento splittail ▪ Mobilization of contaminants and effects on covered fish species ▪ Degree of mercury methylation and effects on covered species
Egeria control	▪ Turbidity conditions in treated waterways ▪ Abundance of non-native predatory fish in treated waterways ▪ Abundance and survival of covered fish species in treated waterways ▪ Effects of chemicals used to control *Egeria* on covered species

It is anticipated that extent of effectiveness monitoring will be reduced through the adaptive management process as relationships between implementation of conservation measures and covered species and ecosystem responses are established. For example, if relationships between restoration of tidal marsh and zooplankton production are established through monitoring of initially restored tidal marshes, then effectiveness monitoring for assessing the production of zooplankton associated with subsequent restoration of tidal marsh may be reduced or no longer required.

3.5.5.6 System Monitoring

The BDCP Implementing Entity in coordination with the Fishery Agencies will develop and implement system monitoring protocols to determine the overall status, trends, and

distribution of selected covered species and natural communities over the term of the BDCP. System monitoring will also be conducted to assess the status and trends of important aquatic ecosystem functions that support covered species and natural communities. System monitoring is important to provide context for interpretation of results of effectiveness monitoring and other monitoring and research and also provides the BDCP Implementing Entity with information necessary to make implementation adjustments through the BDCP adaptive management process in anticipation of large-scale changes detected through monitoring before their effects are fully manifested.

Covered Fish Species

The status, trends, and distribution of covered fish species will be monitored within the planning area over the term of the BDCP. System monitoring for covered fish species will provide the BDCP Implementing Entity with information necessary to track long-term changes in the status, trends, and distribution of covered fish species attributable to all factors (e.g., covered activities, climate change, activities of others) and to document the contribution of the BDCP towards conserving covered fish species. Results of effectiveness monitoring conducted for covered fish species will also inform system-level assessments of status, trends, and distribution (see Section 3.5.5.5). As part of system monitoring, the BDCP Implementing Entity will review relevant scientific data collected for covered fish species whose range and life stage distribution extend beyond the BDCP planning area as it becomes available over the term of the BDCP. Review of information related to the status and trends of covered fish species outside of the Planning Area is important to provide context for status and trends of covered fish species observed within the Planning Area and for making adjustments if BDCP implementation through the adaptive management process as appropriate to better meet the conservation needs of covered fish species populations.

Initially, system monitoring will be conducted annually during periods appropriate for covered species' life stages. If covered species populations improve sufficiently and strong relationships between the response of covered fish species and conservation measures are established, the frequency of system monitoring for covered fish species may be modified by the BDCP Implementing Entity in future years through the adaptive management process. System monitoring for covered fish species, however, will be conducted at intervals of no less than every __ years over the term of the BDCP. It is anticipated that most system monitoring for covered fish species will be conducted through ongoing monitoring programs implemented by other entities (see Section 3.5.4).

Covered Terrestrial Species

System monitoring will only be conducted for terrestrial covered species for which a biological goal of conservation has been established. Species to be conserved under the BDCP include [*list of species to be inserted following identification of terrestrial covered species biological goals*]. System monitoring for covered terrestrial species will provide the BDCP Implementing Entity with information necessary to track long-term changes in the status, trends, and distribution of these terrestrial species attributable to all factors (e.g., covered activities, climate change, activities of others) and to document the

contribution of the BDCP towards conserving covered terrestrial species. Results of effectiveness monitoring conducted for covered terrestrial species will also inform system-level assessments of status, trends, and distribution (see Section 3.5.5.5). As part of system monitoring, the BDCP Implementing Entity will review relevant scientific data collected for covered terrestrial species whose ranges extend beyond the Planning Area as it becomes available over the term of the BDCP. Review of information related to the status and trends of covered terrestrial species outside of the Planning Area is important to provide context for status and trends of covered terrestrial species observed within the Planning Area and for making adjustments if BDCP implementation through the adaptive management process as appropriate to better meet the conservation needs of covered terrestrial species populations.

On authorization of the BDCP, system monitoring will be conducted for these species at least once every __ years over the term of the BDCP. The most recent results of surveys conducted for the covered terrestrial species will be used by the BDCP Implementing Entity to establish a baseline condition from which to measure future changes in the abundance and distribution of these species in the Planning Area. The Implementing Entity will develop science-based and peer-reviewed protocols for conducting system monitoring for covered terrestrial species as described in Section 3.5.3.

Covered Natural Communities

The BDCP Implementing Entity will monitor the extent and distribution of covered natural communities within the planning area at __-year intervals over the term of the BDCP. System monitoring of covered natural communities will provide the BDCP Implementing Entity with information necessary to track long-term changes in the distribution and extent of covered natural communities attributable to all factors affecting the communities (e.g., covered activities, climate change, activities of others) and to document the contribution of the BDCP towards maintaining and improving the extent, distribution, and continuity of natural communities within the planning area. The baseline conditions from which changes in the extent and distribution of natural communities will be assessed are the conditions described in Chapter 2, *Existing Ecological Conditions*.

Aquatic Ecosystem Functions and Attributes

The BDCP Implementing Entity will monitor important functions and attributes of the aquatic ecosystem within the Planning Area that support covered fish species and aquatic natural communities. System monitoring of aquatic ecosystem conditions will provide the BDCP Implementing Entity with information necessary to track long-term changes in important functions and attributes of the aquatic ecosystem attributable to all factors affecting the aquatic ecosystem (e.g., covered activities, climate change, activities of others) and to document the contribution of the BDCP towards maintaining and improving aquatic ecosystem functions in support of the covered fish species.

The most recent relevant data collected for the Delta aquatic ecosystem will be used by the BDCP Implementing Entity to establish conditions from which to measure future changes in ecosystem functions and attributes in the Planning Area. Depending on the

type and extent of data gaps, the BDCP Implementing Entity may collect additional information to establish the baseline condition. Initially, system monitoring will be conducted annually to detect responses in the aquatic ecosystem as covered activities and conservation measures are implemented. If strong relationships between the response of specific ecosystem functions and attributes and conservation measures are established, the frequency of system monitoring for those monitoring elements of the plan may be modified by the BDCP Implementing Entity in future years through the adaptive management process. System monitoring for aquatic ecosystem functions and attributes, however, will be conducted at intervals of no less than __ years. It is anticipated that most aquatic ecosystem system monitoring will be conducted through ongoing monitoring programs implemented by other entities (see Section 3.5.4).

3.5.6 Research and Analytical Tools Development

[*Note to Reviewers: Areas for potential research and analytical tools development will be revised and expanded as conservation measures are further developed.*]

BDCP Implementing Entity may undertake or contract research to develop information necessary to better inform BDCP implementation. The types of research that may be conducted include those related to resolving BDCP-specific uncertainties related to:

- technologies and methods for effectively implementing conservation measures;
- appropriate performance indicators, targets, and adaptive management triggers;
- the ecological requirements of covered species as they relate to effective implementation of conservation measures; and
- the likely response of covered species to conservation measures.

Results of research would also be used to help direct and prioritize subsequent implementation of conservation measures.

The BDCP Implementing Entity may develop or participate in the development of models and other analytical tools to help inform BDCP implementation. These analytical tools include development of relevant deterministic, statistical, and conceptual models and correlations. To develop these tools, the BDCP Implementing Entity may conduct studies to collect information necessary for their development. Additionally, it is anticipated that the BDCP Implementing Entity will also participate in revising existing tools (e.g., hydrodynamic models) as new information becomes available over the term of the BDCP to improve their utility. The types of analytical tools that the BDCP Implementing Entity may develop or improve include the following.

- Population models for covered fish species that are focused on life stages that use the Delta.

- Models that quantify the contribution of various species stressors to life stage-specific mortality rates for covered fish species for use in assessing the

effectiveness of avoidance and minimization measures and measures to conserve covered fish species.

- Site specific hydrodynamic and other appropriate models to provide information for use in designing and managing tidal marsh, inundated floodplain, and channel margin habitat restoration.

- Conceptual, statistical, and process models necessary for predicting life-stage specific and population-level responses of covered fish species to changes in Delta conditions (e.g., operations, implementation of conservation measures, climate change) and changes in food web dynamics and production.

- Models for predicting effects of changes in Delta conditions (e.g., operations, implementation of conservation measures, climate change) on water temperatures, salinity gradients, tidal hydrodynamics, and other relevant physical attributes of the Delta environment.

3.5.8 Database Development and Maintenance

The BDCP Implementing Entity will develop and maintain a comprehensive GIS-linked database to track implementation of all aspects of the BDCP. The database should be structured to be "user friendly" and to allow for future expansion and integration with external databases (e.g., linkage to CALFED and Fishery Agency databases). The database should be structured to support the following services:

- data documentation such that future users can determine why, how, and where data were collected (i.e., meta data);
- quality assurance and control of the data and data entry;
- access and use the most current information for analysis and decision making; and
- evaluation of data by all users, as appropriate, and incorporation of corrections and improvements in the data.

Major types of information expected to be maintained within the database include:

- monitoring, research, and adaptive management experiment data and results;
- BDCP funding and expenditures;
- status of covered activities, including implementation and impacts;
- implementation status of conservation measures;
- implementation status of research and adaptive management experiments;
- adopted changes to BDCP implementation through the adaptive management process; and
- all reports and documents generated by the Implementing Entity and relevant data and reports generated by other entities.

The BDCP Implementing Entity may choose to develop a web-linked database to facilitate controlled transference of information into and out of the database by other entities. If the BDCP Implementing Entity chooses to allow access to the database by others, the database will incorporate strict controls and monitoring to ensure the integrity of the database is maintained.

3.5.9 Monitoring and Research Schedule

The general schedule for implementing monitoring is presented in Table 3-X. Following authorization of the BDCP, the Implementing Entity will develop detailed monitoring schedules for performance, effectiveness, and system monitoring. In addition, site-specific monitoring schedules will be developed for each BDCP habitat area as they are restored.

3.5.10 Reporting

3.5.10.1 Preconstruction Surveys and Construction Monitoring

[To come.]

3.5.10.2 Implementation Reporting

The BDCP Implementing Entity will prepare annual implementation reports that describe monitoring, research, and adaptive management experiment activities and results over the term of the BDCP. Annual implementation reports will summarize the previous calendar year's activities and results and will be completed by March 31 of the following year. Reports will be submitted to the BDCP permitting agencies, permit applicants, and participants. The process for distributing implementation reports is described in Chapter 7, *Implementing Structure*. The BDCP Implementing Entity may also distribute reports as appropriate to other cooperating entities and entities engaged in Delta ecosystem management and research that could benefit from sharing information. The BDCP Implementing Entity will use results of performance, effectiveness, and system monitoring, and adaptive management experiments to assess BDCP progress towards achieving the biological goals and objectives and to inform adaptive management decision making over the term of the BDCP.

Annual implementation reports, as appropriate to BDCP activities undertaken during the reporting year, should include descriptions of:

- implemented covered activities;
- implemented conservation measures;
- implemented avoidance, minimization, and mitigation measures to address impacts of covered activities and conservation measures on covered species and natural communities;
- effects monitoring activities and results;
- performance monitoring activities, monitoring results, and a description of

implemented remedial actions, if any;

- effectiveness monitoring activities and monitoring results; and
- research activities and results.

Implementation reports will also include year-to-date summaries of the extent to which conservation measures have been implemented and impacts of covered activities and conservation measures on covered species and natural communities.